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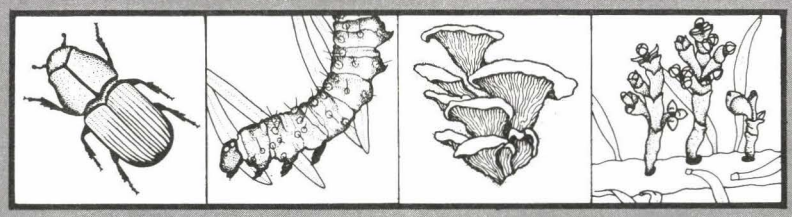

Report No.

81-5

3450
April 1981

EVALUATION OF DWARF MISTLETOE CONTROL PROJECTS SULA AND DARBY RANGER DISTRICTS BITTERROOT NATIONAL FOREST

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ABSTRACT

Residual Douglas-fir are dwarf mistletoe-infested and pose a threat to regeneration. Felling of these residuals will reduce dwarf mistletoe intensity and increase future volume yields. The benefit/cost ratio at 4 percent for the current rotation is 0.51/1 on the Sula RD and 0.45/1 on the Darby RD (both negative ratios). Elimination of dwarf mistletoe infestation for several rotations will increase benefits. Value added to the economy cannot be used in benefit/cost analysis, but will be substantial. Control is recommended.

INTRODUCTION

The Sula Ranger District has proposed two control projects and one presuppression survey:

1. Bear Creek Saddle #1 - Killing old growth dwarf mistletoe-infested Douglas-fir on 70 acres to protect present regeneration and proposed plantings.

2. Bear Creek Saddle #2 - Same as #1 above on 95 acres.

3. Cameron and Meadow Creek Surveys - Presuppression surveys on 200 acres to plan control projects for F.Y. 1982 or later.

Carl Jacobs, Sula RD, and I evaluated the two Bear Creek Saddle areas on October 21, 1980. We were accompanied by Wayne Avants, Sula RD, and Robert James and Donald Pierce, FPM. We discussed management alternatives available to the District.

The Darby Ranger District has proposed two control projects:

1. Blacktail - Killing old growth dwarf mistletoe-infested Douglas-fir on 98 acres to protect present and future regeneration.

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2. Bunkhouse - Same as above on 80 acres. This is a continuation of a large-scale rehabilitation project started in F.Y. 1980.

Robert McKee, Darby RD; Robert James, FPM; and I evaluated these areas on February 17. We discussed management alternatives available to the District.

TECHNICAL INFORMATION

Causal agent. Douglas-fir dwarf mistletoe, Arceuthobium douglasii.

Host. Douglas-fir, Pseudotsuga menziesii.

Type of damage. Reduction of tree vigor, reduction of height and diameter growth, and some mortality. My estimate for average volume loss in infested Douglas-fir type in the Bitterroot area due to A. douglasii is 20 cubic feet per acre per year.

AREA DESCRIPTION

Proposed control areas on the Sula RD are near Bear Creek Saddle (figure 1). Proposed control areas on the Darby RD are near Blacktail Point and Lake Como (figure 2).

Stands were logged several years ago, and some nonmerchantable large trees were left scattered throughout the areas. Dwarf mistletoe infestation varies from severe to none in the Douglas-fir. Scattered infested lodgepole pine are present, but not in sufficient numbers to be a threat to lodgepole pine regeneration. Ponderosa pine, subalpine fir, and Engelmann spruce, also present on the areas, are not affected by dwarf mistletoe.

MANAGEMENT ALTERNATIVES

1. Defer treatment. Some of the residual Douglas-fir will become merchantable, but the dwarf mistletoe-infested trees will be a threat to present regeneration and proposed plantings. Stand destruction may become the only future option.

2. Fell infested residuals and interplant unstocked areas. This will result in a fully stocked young stand with insignificant dwarf mistletoe infestation.

PREFERRED ALTERNATIVE

Preferred treatment includes partial to complete felling of infested Douglas-fir patches, slash disposal by lopping and/or burning, and interplanting unstocked areas.

DISCUSSION

Douglas-fir dwarf mistletoe is responsible for about 20 cubic feet per acre per year volume loss on the Bitterroot National Forest. Infested trees and stands are also more vulnerable to attack by other disease organisms and insects.

Other funds, such as KV, are unavailable to do the felling job, since KV dollars can no longer be spent on these old sale areas. Other funds (Fuels Management and PM 033) are proposed for slash disposal, scarification, and interplanting. Total costs and FPM's share are:

District	Acres	Cost	FPM Share
Sula	165	$38,244	$14,384
Darby	178	39,063	16,055
Totals	343	$77,307	30,439

BENEFIT/COST ANALYSIS

Yield projections on the Forest for two commercial thinnings and a harvest cut show the following volumes and values:

Cutting Age	Volume Recovery (MBF)	Value Per MBF 1/ ($)	Recovery Value ($)
80	2	125	250
100	2	125	250
120	16	125	2,000
Totals	20		$2,500

1/ From a recent sale on Sula RD, 1981 values, species weighted.

These values assume that stumpage values will remain constant for the next 120 years. A more realistic analysis should include a forecast of increased stumpage value or the use of a discount rate lower than the 10 percent required until recently by the Office of Management and Budget. I have opted to use a 4 percent discount rate rather than forecast an increase in stumpage values.

By applying a 4 percent discount rate to the values obtained above, the net present worth (npw) of dwarf mistletoe control is:

Time (n)	Dollar Value	Discount Factor 1/	npw ($)
80	250	0.0434	10.85
100	250	0.0198	4.95
120	2,000	0.0090	18.00
Totals	2,500		$33.80

1/ Present value of $1 for n years @ 4 percent.

Cost of treatment will be $66 per acre on the Sula RD and $75 per acre on the Darby RD. By dividing the npw of the benefits by the treatment cost, the benefit/cost is 0.51/1 on the Sula RD and 0.45/1 on the Darby RD (both negative ratios). Stumpage prices will no doubt continue to rise, and the benefits will be greater.

There will also be value added to the economy. Each million board feet of timber cut creates 7 person-years of employment paying an average of $18,000 per year. This will generate 0.02, 0.02, and 0.16 years of employment in 80, 100, and 120 years respectively and add $3,600 to the economy for each acre in the treatment area.

A benefit not directly related to npw is the reduction in dwarf mistletoe infestation severity for several rotations.

RECOMMENDATION

Reduction of dwarf mistletoe impact through silvicultural practices is biologically sound. Costs are usually higher when dwarf mistletoe must be considered, and additional funding is often required. I recommend the use of insect and disease funds for the project.

Because control will be by felling scattered cull trees from areas already clearcut, there will be no additional adverse impact on other resources. The projects are neither major nor controversial, and do not need environmental analyses.

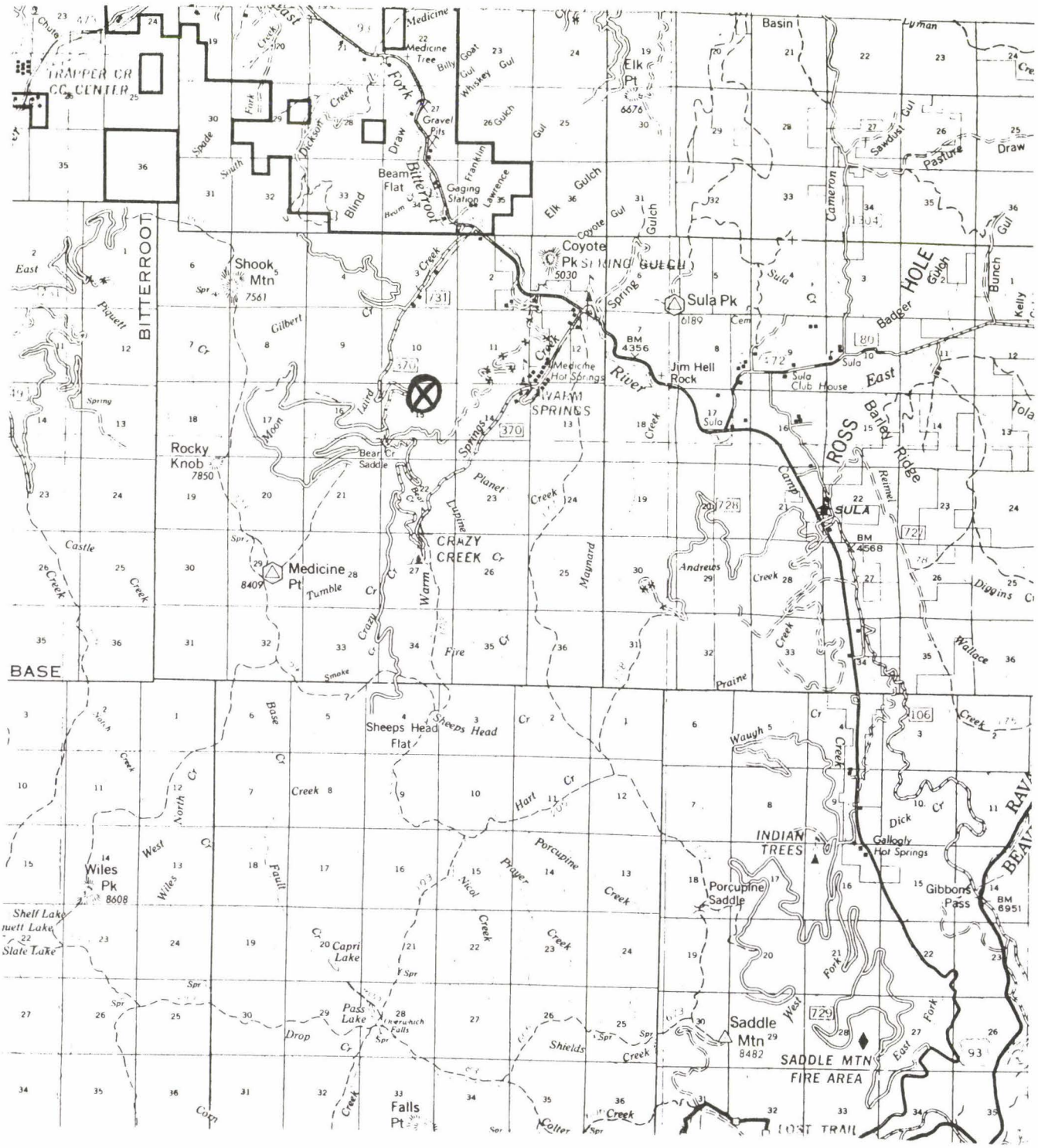

Figure 1.--Location of proposed dwarf mistletoe control areas, Sula RD.

⊗ Project areas

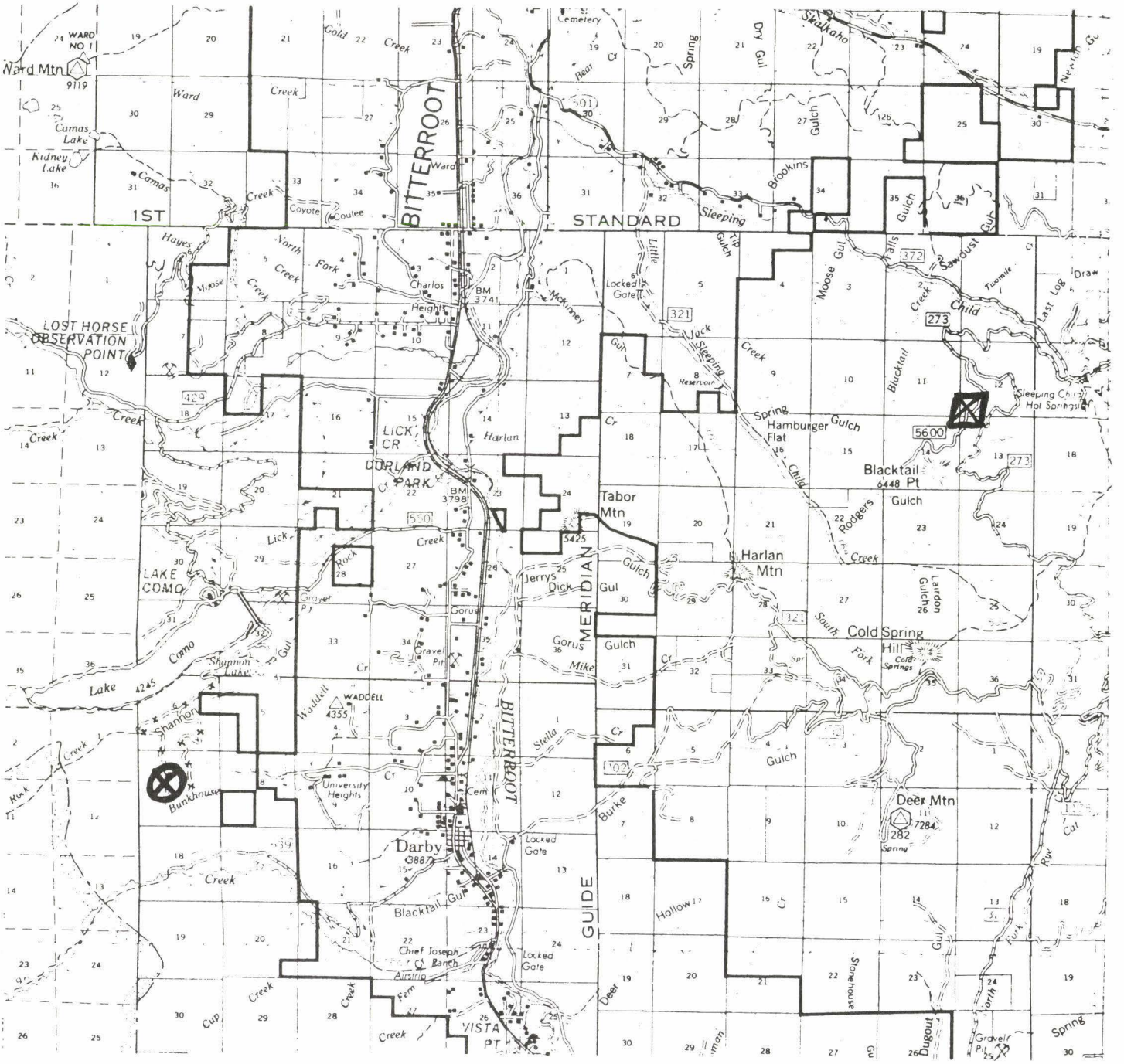

Figure 2.--Location of proposed dwarf mistletoe control areas, Darby RD.

⊠ Blacktail project area

⊗ Bunkhouse project area